

**UNITED STATES BANKRUPTCY COURT  
FOR THE SOUTHERN DISTRICT OF TEXAS  
HOUSTON DIVISION**

<b>In re:</b>  <b>FIELDWOOD ENERGY LLC, <i>et al.</i>,</b>  <b>Debtors.<sup>1</sup></b>	§ § § § § § §	<b>Chapter 11</b>  <b>Case No. 20-33948 (MI)</b>  <b>(Jointly Administered)</b>
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**DECLARATION OF LEE GEORGE**

I, Lee George, pursuant to section 1746 of title 28 of the United States Code, hereby declare that the following is true to the best of my knowledge, information, and belief:

1. I am over the age of 18 and authorized to submit this Declaration. I am not being specifically compensated for this testimony other than through payments received by Netherland, Sewell & Associates, Inc. (“NSAI”) as a professional retained by the LLOG Exploration Company, LLC (“LEC”). In any event, no aspect of my testimony is contingent on any payment to NSAI. If called upon to testify, I could and would testify to the following facts and expert opinions set forth herein.

**Professional Background and Qualifications**

2. I am a Licensed Professional Engineer in the State of Texas and member of the Society of Petroleum Engineers.
3. I have been a petroleum engineering consultant at NSAI since 1997. My work includes

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<sup>1</sup> The Debtors in these chapter 11 cases, along with the last four digits of each Debtor’s federal tax identification number, as applicable, are: Dynamic Offshore Resources NS, LLC (0158); Fieldwood Energy LLC (6778); Fieldwood Energy Inc. (4991); Fieldwood Energy Offshore LLC (4494); Fieldwood Onshore LLC (3489); Fieldwood SD Offshore LLC (8786); Fieldwood Offshore LLC (2930); FW GOM Pipeline, Inc. (8440); GOM Shelf LLC (8107); Bandon Oil and Gas GP, LLC (9172); Bandon Oil and Gas, LP (9266); Fieldwood Energy SP LLC (1971); Galveston Bay Pipeline LLC (5703); and Galveston Bay Processing LLC (0422). The Debtors’ primary mailing address is 2000 W. Sam Houston Parkway S., Suite 1200, Houston, TX 77042.

oil and gas property evaluations, analysis of secondary and tertiary recovery projects, field studies, evaluation of drilling proposals, and resources assessments. Areas of specific expertise include waterflooding, CO2 projects, well test and nodal analysis, abnormally pressured reservoirs, retrograde condensate reservoirs, gas deliverability, and material balance/reservoir simulation studies. A copy of my complete curriculum vitae is attached hereto as Exhibit A.

4. I am familiar with the oil and gas properties located in Green Canyon 201 Field (“GC 201”) and have prepared reserve reports for various parts of GC 201 for over 10-years.

**Present Value of the Fieldwood Overriding Royalty Interest**

5. I have estimated the proved, probable, and possible reserves and future revenue, as of June 1, 2021, to the Fieldwood Energy Offshore LLC (“Fieldwood”) royalty and overriding royalty interest in certain oil and gas properties located in GC 201, as listed in the accompanying tabulations attached hereto as Exhibit B.
6. I completed the evaluation on or about March 12, 2021. The estimates have been prepared using oil, natural gas liquids (“NGL”), and gas price parameters specified by LEC. Oil and NGL prices are based on April 27, 2021, NYMEX West Texas Intermediate prices and are adjusted for quality, transportation fees, and market differentials. Gas prices are based on April 27, 2021, NYMEX Henry Hub prices and are adjusted for energy content, transportation fees, and market differentials.
7. Because Fieldwood owns no working interest in these properties, no operating costs would be incurred. However, estimated operating costs have been used to confirm economic viability and determine economic limits for the properties. These cost estimates are based on operating expense records of LLOG Exploration Offshore, LLC (“LEO”),

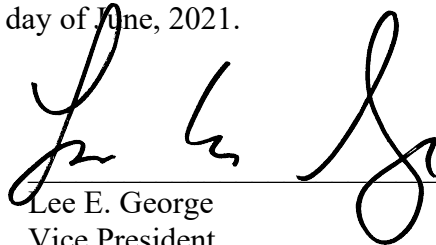
the operator of the properties, and our knowledge of similar offshore operations. Fieldwood would not incur any costs due to abandonment, nor would it realize any salvage value for the lease and well equipment.

8. The estimates set forth in Exhibit B have been prepared in accordance with the definitions and guidelines set forth in the 2018 Petroleum Resources Management System (PRMS) approved by the Society of Petroleum Engineers (SPE). A copy of the PRMS is attached hereto as Exhibit C.

### **Conclusions**

9. My best estimate of the value of the Fieldwood interest as of June 1, 2021, is \$12,422,800.00, which is the present value, discounted at 10%, of the net revenue of the proved and probable (2P) reserves in these properties.

Signed in Houston, Texas, this 18<sup>th</sup> day of June, 2021.



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Lee E. George  
Vice President  
Netherland, Sewell & Associates, Inc.

**Exhibit A**

Curriculum Vitae



## **LEE E. GEORGE**

Vice President - Team Leader  
lgeorge@nsai-petro.com

Education: B.S. (with highest honors), Civil Engineering, University of Texas at Austin.

Certifications/Associations: Licensed Professional Engineer in the State of Texas. Member of the Society of Petroleum Engineers.

Lee has been a petroleum engineering consultant at NSAI since 1997. Work includes oil and gas property evaluations, analysis of secondary and tertiary recovery projects, field studies, evaluation of drilling proposals, and resources assessments. Areas of specific expertise include waterflooding, CO<sub>2</sub> projects, well test and nodal analysis, abnormally pressured reservoirs, retrograde condensate reservoirs, gas deliverability, and material balance/reservoir simulation studies. Additionally, he is experienced with fiscal terms, production sharing agreements, and service contract terms commonly used in many regions of the world including Algeria, Angola, Argentina, Australia, China, Congo, Ecuador, Egypt, Indonesia, New Zealand, Papua New Guinea, Venezuela, Trinidad, and others. Some of the major projects Lee has been involved with are listed below.

## **PROJECT EXPERIENCE**

### **EXPERT TESTIMONY/EQUITY/ARBITRATION**

- Prepared independent technical report and provided expert testimony for an arbitration involving properties located in Kings County, California. The arbitration involved estimating loss of production related to alleged trespass and unrelinquished acreage.
- Provided expert testimony and conducted the technical work to prepare expert and rebuttal reports used in an ICSID tribunal (ARB/06/11). In the arbitration, represented a major international oil company with a multi-billion dollar claim against a South American country.
- Prepared an expert technical report and testified during a deposition regarding poor production performance and pressure maintenance issues for several wells located in Lafourche Parish, Louisiana. The case settled before going to trial.
- Provided reserves reports and expert testimony for a bankruptcy proceeding that involved several South Louisiana and Gulf of Mexico oil and gas properties.
- Provided engineering support to the Independent Expert in a gas reserves redetermination for the Maui Field located offshore New Zealand
- Lead engineer in the Cedar Hills, North Dakota, arbitration between Burlington Resources, Inc. and Continental Resources, Inc. Provided litigation support during depositions and the trial phase of the arbitration.

### **PROBABILISTIC/RESOURCES ASSESSMENTS**

- Assessed the risk exploration potential of numerous prospects located in the Exmouth, Barrow, Dampier, and Beagle sub-basins of the Northwest Shelf of Australia as part of a fair market value evaluation.
- Provided engineering support for numerous resources assessments and drilling proposals in the Hardeman Basin, East Texas, and the Texas Gulf Coast.
- Conducted regional exploration study and resources potential assessment in Block 126, Algeria.
- Performed probabilistic evaluation of exploration potential of the Acambuco Block in the Northwest Basin of Argentina.



## LEE E. GEORGE

(Continued)

### NORTH AMERICA

- Conducted numerous oil and gas property evaluations in most regions of the United States, including preparation of annual and semi-annual reserves reports used in banking, SEC filings and other financing.
- Evaluated several deep retrograde condensate reservoirs in south Louisiana for project financing.
- Conducted reserves study for the Greater Natural Buttes field complex as part of a potential acquisition.
- Served as lead engineer on several regional screening studies involving gas deliverability, infill drilling, horizontal drilling, and acquisition targets.
- Conducted reserves studies for various fields located in the Cook Inlet and the North Slope of Alaska.
- Coordinated several reserves studies in the Permian Basin for potential acquisitions, sales, and mergers. Many of those studies included evaluation of tertiary recovery.
- Evaluated horizontal drilling and secondary recovery, including high pressure air injection, in the Cedar Hills Field, Williston Basin, North Dakota.
- Estimated reserves for many Gulf of Mexico fields including large deep water projects.
- Conducted several assessments of Helium resources in both the United States and Canada.

### SOUTH AMERICA

- Performed a technical evaluation of several Ecuadorian oil fields located in Block 15 on behalf of Occidental Petroleum Corporation, including structure mapping, depth conversion, cross section generation and correlations, 3-D modeling, and volumetrics. Estimated proved, probable, and possible reserves and provided several expert reports for an international arbitration.
- Audited reserves for Block 15 and Fanny-Dorine Field in the Tarapoa Block, Ecuador, for Encana.
- Conducted reserves certification for an onshore gas field in Trinidad for Vintage Petroleum, Inc.
- Conducted reserves certification for Santa Cruz I, Argentina, and evaluated resources potential for Ultrapetrol.
- Evaluated several existing and proposed waterfloods for Vintage Oil Argentina, Inc. in the San Jorge Basin of Argentina.
- Annual reserves assessment for Blocks 14, 17, and Shiripuno Concessions in the Oriente Basin of Ecuador for Vintage Petroleum, Inc.

### MIDDLE EAST

- Conducted reserves certification for the Dukhan Field in Qatar as part of the NGL-4 and Q-Chem projects.

### ASIA PACIFIC

- Conducted reserves certification study for several fields located onshore and offshore Japan including several fractured granite reservoirs.
- Conducted gas reserves certification for the four-field Geryon complex on the Northwest Shelf of Australia.
- Coordinated material balance and gas deliverability studies for East Spar, John Brookes, and Reindeer Fields as part of a potential methanol project.
- Conducted field study for the Maui gas field, offshore in the Taranaki Basin of New Zealand.

### AFRICA

- Coordinated regional study of 13 fields in the Ghadames and Illizi Basins of eastern Algeria for Anadarko.



## **LEE E. GEORGE**

(Continued)

- Conducted reserves certification for the Obe and Ukpokiti Fields in offshore Nigeria.
- Performed gas deliverability study and reserves certification for Alba Field, Equatorial Guinea, in support of the methanol plant financing by OPIC.

## **PRIOR EXPERIENCE**

Lee's prior work experience includes several engineering assignments at Exxon Company, U.S.A. in Corpus Christi (1981 to 1992), Houston (1993 to 1994), and New Orleans (1995 to 1997). Lee's first assignment was as a Facility and Construction Engineer involved in the design and construction of many facilities in the South Texas area, including several cryogenic gas plant installations, sour gas treating facilities, gas compression additions, and pipeline projects. Subsequent assignments included reservoir and subsurface engineering for several South Texas fields involving surveillance activities, workover and drilling prospect evaluation, reserves assessment, well completion and hydraulic fracture design, compression, low pressure gas depletion techniques, and abnormally pressured gas reservoirs. Lee's work included economic evaluations, volumetric calculations, reservoir simulation, P/Z analysis, and well test design/analysis. Before leaving Exxon, Lee was part of the reservoir management steering team for Exxon's Gulf of Mexico fields, providing guidance on depletion planning and optimization. In addition he was responsible for a mature offshore oil field where he identified, evaluated, and recommended a successful horizontal well program to redevelop the field.

## **REFERENCES**

Glenn Devoll – Gungoll, Collins, Box & Devoll, P.C., Enid, Oklahoma  
Patrick Gray – Johnson Gray McNamara, LLC, Lafayette, Louisiana  
Dwayne Guidry – ExxonMobil Corporation, Houston, Texas  
Kevin Hayes – Hall Estill, Tulsa, Oklahoma  
Jim Lee – Vinson & Elkins LLP, Dallas, Texas  
David Rivkin – Debevoise & Plimpton LLP, New York City, New York  
Mark Shircore – BHP Billiton Petroleum Pty. Ltd., Perth, Australia  
Dr. S. P. Singh – Occidental Petroleum Corporation, Houston, Texas  
Graham Whaling – Parkman Whaling LLC, Houston, Texas

**Exhibit B**

Proved, probable, and possible reserves  
and future revenue, as of June 1, 2021





## TABLE OF CONTENTS

### SUMMARY PROJECTIONS OF RESERVES AND REVENUE

Proved Developed Producing Reserves	I
Probable Reserves	II
Proved + Probable (2P) Reserves	III
Possible Reserves	IV
Proved + Probable + Possible (3P) Reserves	V

### RESERVES AND ECONOMICS

Summary Projection of Reserves and Revenue	1
Reserves, Economics, and Basic Data	2

## SUMMARY PROJECTIONS OF RESERVES AND REVENUE



SUMMARY PROJECTION OF RESERVES AND REVENUE  
AS OF JUNE 1, 2021

FIELDWOOD ENERGY OFFSHORE LLC  
ROYALTY AND OVERRIDING ROYALTY INTEREST

PROVED DEVELOPED PRODUCING RESERVES

SUMMARY - CERTAIN PROPERTIES  
LOCATED IN GREEN CANYON 201 FIELD  
FEDERAL WATERS IN THE GULF OF MEXICO

PERIOD ENDING M-D-Y	GROSS RESERVES		NET RESERVES				AVERAGE PRICES			GROSS REVENUE			
	OIL	GAS	OIL	NGL	GAS	EQUIV	OIL	NGL	GAS	OIL	NGL	GAS	TOTAL
	MBBL	MMCF	MBBL	MBBL	MMCF	MBOE	\$/BBL	\$/BBL	\$/MCF	M\$	M\$	M\$	M\$
12-31-2021	817.0	618.1	39.8	2.8	21.3	46.2	58.11	23.54	2.896	2,312.2	66.2	61.8	2,440.2
12-31-2022	1,309.2	990.4	63.8	4.5	34.2	74.0	54.57	22.20	2.621	3,479.6	100.0	89.6	3,669.2
12-31-2023	711.3	531.4	34.6	2.4	18.3	40.1	51.74	21.12	2.463	1,792.3	51.0	45.2	1,888.5
12-31-2024	91.2	63.8	4.4	0.3	2.2	5.1	50.00	20.46	2.457	222.1	5.9	5.4	233.4
05-31-2025	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.000	0.0	0.0	0.0	0.0
SUBTOTAL	2,928.7	2,203.8	142.6	10.0	76.1	165.3	54.73	22.26	2.655	7,806.2	223.1	202.0	8,231.4
REMAINING	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.000	0.0	0.0	0.0	0.0
TOTAL	2,928.7	2,203.8	142.6	10.0	76.1	165.3	54.73	22.26	2.655	7,806.2	223.1	202.0	8,231.4
CUM PROD	1,552.6	1,172.9											
ULTIMATE	4,481.4	3,376.7											

PERIOD ENDING M-D-Y	NUMBER OF ACTIVE COMPLETIONS		NET DEDUCTIONS/EXPENDITURES					FUTURE NET REVENUE			PRESENT WORTH PROFILE	
			TAXES		CAPITAL	ABDNMNT	OPERATING	UNDISCOUNTED		DISC AT 10.000%		
	PRODUCTION		AD VALOREM	COST	COST	EXPENSE		PERIOD	CUM	CUM	DISC RATE	CUM PW
	GROSS	NET	M\$					M\$	M\$	M\$	%	M\$
12-31-2021	2	0.0	0.0	0.0	0.0	0.0	0.0	2,440.2	2,440.2	2,373.8	8.000	7,582.9
12-31-2022	2	0.0	0.0	0.0	0.0	0.0	0.0	3,669.2	6,109.4	5,689.6	12.000	7,301.7
12-31-2023	2	0.0	0.0	0.0	0.0	0.0	0.0	1,888.5	7,997.9	7,260.2	15.000	7,106.7
12-31-2024	1	0.0	0.0	0.0	0.0	0.0	0.0	233.4	8,231.4	7,439.1	20.000	6,808.4
05-31-2025	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8,231.4	7,439.1	25.000	6,539.2
											30.000	6,295.1
											35.000	6,072.7
											40.000	5,869.5
											45.000	5,682.9
											50.000	5,511.0
SUBTOTAL			0.0	0.0	0.0	0.0	0.0	8,231.4	8,231.4	7,439.1		
REMAINING			0.0	0.0	0.0	0.0	0.0	0.0	8,231.4	7,439.1		
TOTAL OF 4.0 YRS			0.0	0.0	0.0	0.0	0.0	8,231.4	8,231.4	7,439.1		

Table 1

All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

BASED ON LEC PRICE AND COST PARAMETERS

LLOG-000043



## SUMMARY PROJECTION OF RESERVES AND REVENUE

AS OF JUNE 1, 2021

FIELDWOOD ENERGY OFFSHORE LLC  
ROYALTY AND OVERRIDING ROYALTY INTEREST

PROBABLE RESERVES

SUMMARY - CERTAIN PROPERTIES  
LOCATED IN GREEN CANYON 201 FIELD  
FEDERAL WATERS IN THE GULF OF MEXICO

PERIOD ENDING M-D-Y	GROSS RESERVES		NET RESERVES				AVERAGE PRICES			GROSS REVENUE			
	OIL	GAS	OIL	NGL	GAS	EQUIV	OIL	NGL	GAS	OIL	NGL	GAS	TOTAL
	MBBL	MMCF	MBBL	MBBL	MMCF	MBOE	\$/BBL	\$/BBL	\$/MCF	M\$	M\$	M\$	M\$
12-31-2021	13.1	9.2	0.6	0.0	0.3	0.7	58.11	23.54	2.896	37.1	1.0	0.9	39.0
12-31-2022	86.3	64.9	4.2	0.3	2.2	4.9	54.57	22.20	2.621	229.2	6.6	5.9	241.7
12-31-2023	649.8	499.0	31.6	2.3	17.2	36.8	51.74	21.12	2.463	1,637.4	47.9	42.4	1,727.8
12-31-2024	1,040.4	791.3	50.7	3.6	27.3	58.8	50.00	20.46	2.457	2,533.5	73.6	67.1	2,674.3
12-31-2025	286.7	205.8	14.0	0.9	7.1	16.1	49.06	20.10	2.472	685.0	18.8	17.6	721.4
12-31-2026	195.9	137.1	9.5	0.6	4.7	11.0	48.59	19.92	2.487	463.7	12.4	11.8	487.9
12-31-2027	180.3	126.2	8.8	0.6	4.4	10.1	48.42	19.86	2.493	425.1	11.4	10.9	447.3
12-31-2028	165.8	116.1	8.1	0.5	4.0	9.3	48.45	19.87	2.494	391.3	10.5	10.0	411.8
12-31-2029	72.1	50.5	3.5	0.2	1.7	4.0	48.69	19.96	2.524	171.1	4.6	4.4	180.0
06-30-2030	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.000	0.0	0.0	0.0	0.0
SUBTOTAL	2,690.4	2,000.1	131.0	9.1	69.1	151.6	50.17	20.54	2.475	6,573.4	186.8	171.0	6,931.2
REMAINING	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.000	0.0	0.0	0.0	0.0
TOTAL	2,690.4	2,000.1	131.0	9.1	69.1	151.6	50.17	20.54	2.475	6,573.4	186.8	171.0	6,931.2
CUM PROD	-16.8	-69.6											
ULTIMATE	2,673.6	1,930.5											

PERIOD ENDING M-D-Y	NUMBER OF ACTIVE COMPLETIONS		NET DEDUCTIONS/EXPENDITURES					FUTURE NET REVENUE			PRESENT WORTH PROFILE	
			TAXES		CAPITAL	ABDNMNT	OPERATING	UNDISCOUNTED		DISC AT 10.000%		
	PRODUCTION		AD VALOREM		COST	COST	EXPENSE	PERIOD	CUM	CUM	DISC RATE	CUM PW
	GROSS	NET	M\$	M\$	M\$	M\$	M\$	M\$	M\$	M\$	%	M\$
12-31-2021	0	0.0	0.0	0.0	0.0	0.0	0.0	39.0	39.0	37.9	8.000	5,301.5
12-31-2022	0	0.0	0.0	0.0	0.0	0.0	0.0	241.7	280.7	251.3	12.000	4,693.5
12-31-2023	0	0.0	0.0	0.0	0.0	0.0	0.0	1,727.8	2,008.5	1,647.6	15.000	4,303.5
12-31-2024	1	0.0	0.0	0.0	0.0	0.0	0.0	2,674.3	4,682.8	3,642.1	20.000	3,753.7
12-31-2025	2	0.0	0.0	0.0	0.0	0.0	0.0	721.4	5,404.1	4,136.7	25.000	3,303.0
12-31-2026	1	0.0	0.0	0.0	0.0	0.0	0.0	487.9	5,892.0	4,437.5	30.000	2,929.2
12-31-2027	1	0.0	0.0	0.0	0.0	0.0	0.0	447.3	6,339.3	4,688.3	35.000	2,615.7
12-31-2028	1	0.0	0.0	0.0	0.0	0.0	0.0	411.8	6,751.1	4,898.2	40.000	2,350.2
12-31-2029	1	0.0	0.0	0.0	0.0	0.0	0.0	180.0	6,931.2	4,983.7	45.000	2,123.5
06-30-2030	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6,931.2	4,983.7	50.000	1,928.3
SUBTOTAL			0.0	0.0	0.0	0.0	0.0	6,931.2	6,931.2	4,983.7		
REMAINING			0.0	0.0	0.0	0.0	0.0	0.0	6,931.2	4,983.7		
TOTAL OF 9.1 YRS			0.0	0.0	0.0	0.0	0.0	6,931.2	6,931.2	4,983.7		

Table II

All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

BASED ON LEC PRICE AND COST PARAMETERS

LLOG-000044



SUMMARY PROJECTION OF RESERVES AND REVENUE  
AS OF JUNE 1, 2021

FIELDWOOD ENERGY OFFSHORE LLC  
ROYALTY AND OVERRIDING ROYALTY INTEREST

PROVED + PROBABLE (2P) RESERVES

SUMMARY - CERTAIN PROPERTIES  
LOCATED IN GREEN CANYON 201 FIELD  
FEDERAL WATERS IN THE GULF OF MEXICO

PERIOD ENDING M-D-Y	GROSS RESERVES		NET RESERVES				AVERAGE PRICES			GROSS REVENUE			
	OIL	GAS	OIL	NGL	GAS	EQUIV	OIL	NGL	GAS	OIL	NGL	GAS	TOTAL
	MBBL	MMCF	MBBL	MBBL	MMCF	MBOE	\$/BBL	\$/BBL	\$/MCF	M\$	M\$	M\$	M\$
12-31-2021	830.1	627.3	40.4	2.9	21.7	46.9	58.11	23.54	2.896	2,349.3	67.2	62.7	2,479.2
12-31-2022	1,395.5	1,055.4	68.0	4.8	36.4	78.8	54.57	22.20	2.621	3,708.8	106.5	95.5	3,910.9
12-31-2023	1,361.1	1,030.4	66.3	4.7	35.6	76.9	51.74	21.12	2.463	3,429.7	99.0	87.6	3,616.3
12-31-2024	1,131.6	855.1	55.1	3.9	29.5	63.9	50.00	20.46	2.457	2,755.6	79.6	72.5	2,907.8
12-31-2025	286.7	205.8	14.0	0.9	7.1	16.1	49.06	20.10	2.472	685.0	18.8	17.6	721.4
12-31-2026	195.9	137.1	9.5	0.6	4.7	11.0	48.59	19.92	2.487	463.7	12.4	11.8	487.9
12-31-2027	180.3	126.2	8.8	0.6	4.4	10.1	48.42	19.86	2.493	425.1	11.4	10.9	447.3
12-31-2028	165.8	116.1	8.1	0.5	4.0	9.3	48.45	19.87	2.494	391.3	10.5	10.0	411.8
12-31-2029	72.1	50.5	3.5	0.2	1.7	4.0	48.69	19.96	2.524	171.1	4.6	4.4	180.0
06-30-2030	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.000	0.0	0.0	0.0	0.0
SUBTOTAL	5,619.1	4,203.9	273.7	19.1	145.2	317.0	52.55	21.44	2.570	14,379.6	410.0	373.0	15,162.6
REMAINING	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.000	0.0	0.0	0.0	0.0
TOTAL	5,619.1	4,203.9	273.7	19.1	145.2	317.0	52.55	21.44	2.570	14,379.6	410.0	373.0	15,162.6
CUM PROD	1,535.9	1,103.3											
ULTIMATE	7,155.0	5,307.2											

PERIOD ENDING M-D-Y	NUMBER OF ACTIVE COMPLETIONS		NET DEDUCTIONS/EXPENDITURES					FUTURE NET REVENUE			PRESENT WORTH PROFILE	
			TAXES		CAPITAL	ABDNMNT	OPERATING	UNDISCOUNTED		DISC AT 10.000%		
	PRODUCTION		AD VALOREM		COST	COST	EXPENSE	PERIOD	CUM	CUM	DISC RATE	CUM PW
	GROSS	NET	M\$	M\$	M\$	M\$	M\$	M\$	M\$	M\$	%	M\$
12-31-2021	2	0.0	0.0	0.0	0.0	0.0	0.0	2,479.2	2,479.2	2,411.7	8.000	12,884.4
12-31-2022	2	0.0	0.0	0.0	0.0	0.0	0.0	3,910.9	6,390.1	5,940.9	12.000	11,995.2
12-31-2023	2	0.0	0.0	0.0	0.0	0.0	0.0	3,616.3	10,006.4	8,907.8	15.000	11,410.3
12-31-2024	2	0.0	0.0	0.0	0.0	0.0	0.0	2,907.8	12,914.2	11,081.2	20.000	10,562.1
12-31-2025	2	0.0	0.0	0.0	0.0	0.0	0.0	721.4	13,635.5	11,575.8	25.000	9,842.2
12-31-2026	1	0.0	0.0	0.0	0.0	0.0	0.0	487.9	14,123.4	11,876.6	30.000	9,224.3
12-31-2027	1	0.0	0.0	0.0	0.0	0.0	0.0	447.3	14,570.7	12,127.4	35.000	8,688.4
12-31-2028	1	0.0	0.0	0.0	0.0	0.0	0.0	411.8	14,982.5	12,337.3	40.000	8,219.7
12-31-2029	1	0.0	0.0	0.0	0.0	0.0	0.0	180.0	15,162.6	12,422.8	45.000	7,806.3
06-30-2030	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15,162.6	12,422.8	50.000	7,439.3
SUBTOTAL			0.0	0.0	0.0	0.0	0.0	15,162.6	15,162.6	12,422.8		
REMAINING			0.0	0.0	0.0	0.0	0.0	0.0	15,162.6	12,422.8		
TOTAL OF 9.1 YRS			0.0	0.0	0.0	0.0	0.0	15,162.6	15,162.6	12,422.8		

Table III

All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

BASED ON LEC PRICE AND COST PARAMETERS

LLOG-000045



SUMMARY PROJECTION OF RESERVES AND REVENUE  
AS OF JUNE 1, 2021

FIELDWOOD ENERGY OFFSHORE LLC  
ROYALTY AND OVERRIDING ROYALTY INTEREST

SUMMARY - CERTAIN PROPERTIES  
LOCATED IN GREEN CANYON 201 FIELD  
FEDERAL WATERS IN THE GULF OF MEXICO

POSSIBLE RESERVES

PERIOD ENDING M-D-Y	GROSS RESERVES		NET RESERVES				AVERAGE PRICES			GROSS REVENUE			
	OIL	GAS	OIL	NGL	GAS	EQUIV	OIL	NGL	GAS	OIL	NGL	GAS	TOTAL
	MBBL	MMCF	MBBL	MBBL	MMCF	MBOE	\$/BBL	\$/BBL	\$/MCF	M\$	M\$	M\$	M\$
12-31-2021	13.1	9.2	0.6	0.0	0.3	0.7	58.11	23.54	2.896	37.1	1.0	0.9	39.0
12-31-2022	21.0	14.7	1.0	0.1	0.5	1.2	54.57	22.20	2.621	55.9	1.5	1.3	58.7
12-31-2023	20.7	14.6	1.0	0.1	0.5	1.2	51.74	21.12	2.463	52.1	1.4	1.2	54.8
12-31-2024	170.9	130.3	8.3	0.6	4.5	9.7	50.00	20.46	2.457	416.1	12.1	11.1	439.3
12-31-2025	748.0	574.8	36.4	2.6	19.8	42.3	49.06	20.10	2.472	1,787.2	52.6	49.1	1,888.8
12-31-2026	15.1	10.5	0.7	0.0	0.4	0.8	48.59	19.92	2.487	35.7	1.0	0.9	37.5
12-31-2027	13.9	9.7	0.7	0.0	0.3	0.8	48.42	19.86	2.493	32.7	0.9	0.8	34.4
12-31-2028	12.8	8.9	0.6	0.0	0.3	0.7	48.45	19.87	2.494	30.1	0.8	0.8	31.7
12-31-2029	92.2	64.5	4.5	0.3	2.2	5.2	48.69	19.96	2.524	218.6	5.9	5.6	230.0
12-31-2030	151.2	105.8	7.4	0.5	3.7	8.5	49.07	20.11	2.585	361.2	9.7	9.4	380.4
12-31-2031	139.1	97.3	6.8	0.4	3.4	7.8	49.52	20.28	2.630	335.4	9.0	8.8	353.2
12-31-2032	127.9	89.6	6.2	0.4	3.1	7.2	49.52	20.28	2.630	308.6	8.3	8.1	325.0
12-31-2033	117.7	82.4	5.7	0.4	2.8	6.6	49.52	20.28	2.630	283.9	7.6	7.5	299.0
12-31-2034	108.3	75.8	5.3	0.3	2.6	6.1	49.52	20.28	2.630	261.2	7.0	6.9	275.0
12-31-2035	99.6	69.7	4.9	0.3	2.4	5.6	49.52	20.28	2.630	240.3	6.4	6.3	253.0
SUBTOTAL	1,851.3	1,358.0	90.2	6.2	46.9	104.2	49.42	20.24	2.535	4,456.0	125.0	118.9	4,699.8
REMAINING	54.4	38.1	2.6	0.2	1.3	3.0	49.52	20.28	2.630	131.2	3.5	3.5	138.2
TOTAL	1,905.7	1,396.0	92.8	6.3	48.2	107.2	49.43	20.24	2.538	4,587.2	128.5	122.3	4,838.0
CUM PROD	11.8	8.2											
ULTIMATE	1,917.5	1,404.3											

PERIOD ENDING M-D-Y	NUMBER OF ACTIVE COMPLETIONS		NET DEDUCTIONS/EXPENDITURES					FUTURE NET REVENUE			PRESENT WORTH PROFILE	
			TAXES		CAPITAL	ABDNMNT	OPERATING	UNDISCOUNTED		DISC AT 10.000%		
			PRODUCTION	AD VALOREM	COST	COST	EXPENSE	PERIOD	CUM	CUM		
	GROSS	NET	M\$	M\$	M\$	M\$	M\$	M\$	M\$	M\$	%	M\$
12-31-2021	0	0.0	0.0	0.0	0.0	0.0	0.0	39.0	39.0	37.9	8.000	2,888.1
12-31-2022	0	0.0	0.0	0.0	0.0	0.0	0.0	58.7	97.7	91.0	12.000	2,328.6
12-31-2023	0	0.0	0.0	0.0	0.0	0.0	0.0	54.8	152.5	135.8	15.000	2,010.9
12-31-2024	0	0.0	0.0	0.0	0.0	0.0	0.0	439.3	591.8	461.2	20.000	1,612.3
12-31-2025	0	0.0	0.0	0.0	0.0	0.0	0.0	1,888.8	2,480.6	1,740.4	25.000	1,324.2
12-31-2026	0	0.0	0.0	0.0	0.0	0.0	0.0	37.5	2,518.1	1,763.5	30.000	1,108.9
12-31-2027	0	0.0	0.0	0.0	0.0	0.0	0.0	34.4	2,552.5	1,782.8	35.000	943.2
12-31-2028	0	0.0	0.0	0.0	0.0	0.0	0.0	31.7	2,584.2	1,799.0	40.000	812.8
12-31-2029	0	0.0	0.0	0.0	0.0	0.0	0.0	230.0	2,814.3	1,903.5	45.000	708.1
12-31-2030	1	0.0	0.0	0.0	0.0	0.0	0.0	380.4	3,194.6	2,063.7	50.000	622.7
12-31-2031	1	0.0	0.0	0.0	0.0	0.0	0.0	353.2	3,547.8	2,198.9		
12-31-2032	1	0.0	0.0	0.0	0.0	0.0	0.0	325.0	3,872.8	2,312.0		
12-31-2033	1	0.0	0.0	0.0	0.0	0.0	0.0	299.0	4,171.7	2,406.6		
12-31-2034	1	0.0	0.0	0.0	0.0	0.0	0.0	275.0	4,446.8	2,485.7		
12-31-2035	1	0.0	0.0	0.0	0.0	0.0	0.0	253.0	4,699.8	2,551.9		
SUBTOTAL			0.0	0.0	0.0	0.0	0.0	4,699.8	4,699.8	2,551.9		
REMAINING			0.0	0.0	0.0	0.0	0.0	138.2	4,838.0	2,585.4		
TOTAL OF 16.2 YRS			0.0	0.0	0.0	0.0	0.0	4,838.0	4,838.0	2,585.4		

Table IV

All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

BASED ON LEC PRICE AND COST PARAMETERS

LLOG-000046



SUMMARY PROJECTION OF RESERVES AND REVENUE  
AS OF JUNE 1, 2021

FIELDWOOD ENERGY OFFSHORE LLC  
ROYALTY AND OVERRIDING ROYALTY INTEREST

PROVED + PROBABLE + POSSIBLE (3P) RESERVES

SUMMARY - CERTAIN PROPERTIES  
LOCATED IN GREEN CANYON 201 FIELD  
FEDERAL WATERS IN THE GULF OF MEXICO

PERIOD ENDING M-D-Y	GROSS RESERVES		NET RESERVES				AVERAGE PRICES			GROSS REVENUE			
	OIL	GAS	OIL	NGL	GAS	EQUIV	OIL	NGL	GAS	OIL	NGL	GAS	TOTAL
	MBBL	MMCF	MBBL	MBBL	MMCF	MBOE	\$/BBL	\$/BBL	\$/MCF	M\$	M\$	M\$	M\$
12-31-2021	843.2	636.4	41.1	2.9	22.0	47.6	58.11	23.54	2.896	2,386.4	68.1	63.6	2,518.2
12-31-2022	1,416.5	1,070.1	69.0	4.9	36.9	80.0	54.57	22.20	2.621	3,764.7	108.0	96.8	3,969.6
12-31-2023	1,381.8	1,045.0	67.3	4.8	36.1	78.1	51.74	21.12	2.463	3,481.9	100.4	88.9	3,671.1
12-31-2024	1,302.5	985.5	63.4	4.5	34.0	73.6	50.00	20.46	2.457	3,171.8	91.7	83.6	3,347.1
12-31-2025	1,034.6	780.6	50.4	3.6	27.0	58.4	49.06	20.10	2.472	2,472.1	71.4	66.6	2,610.1
12-31-2026	211.0	147.7	10.3	0.7	5.1	11.8	48.59	19.92	2.487	499.3	13.4	12.7	525.4
12-31-2027	194.1	135.9	9.5	0.6	4.7	10.9	48.42	19.86	2.493	457.8	12.3	11.7	481.7
12-31-2028	178.6	125.0	8.7	0.6	4.3	10.0	48.45	19.87	2.494	421.4	11.3	10.8	443.5
12-31-2029	164.3	115.0	8.0	0.5	4.0	9.2	48.69	19.96	2.524	389.6	10.4	10.0	410.1
12-31-2030	151.2	105.8	7.4	0.5	3.7	8.5	49.07	20.11	2.585	361.2	9.7	9.4	380.4
12-31-2031	139.1	97.3	6.8	0.4	3.4	7.8	49.52	20.28	2.630	335.4	9.0	8.8	353.2
12-31-2032	127.9	89.6	6.2	0.4	3.1	7.2	49.52	20.28	2.630	308.6	8.3	8.1	325.0
12-31-2033	117.7	82.4	5.7	0.4	2.8	6.6	49.52	20.28	2.630	283.9	7.6	7.5	299.0
12-31-2034	108.3	75.8	5.3	0.3	2.6	6.1	49.52	20.28	2.630	261.2	7.0	6.9	275.0
12-31-2035	99.6	69.7	4.9	0.3	2.4	5.6	49.52	20.28	2.630	240.3	6.4	6.3	253.0
SUBTOTAL	7,470.4	5,561.9	363.8	25.3	192.0	421.1	51.77	21.15	2.561	18,835.6	534.9	491.9	19,862.4
REMAINING	54.4	38.1	2.6	0.2	1.3	3.0	49.52	20.28	2.630	131.2	3.5	3.5	138.2
TOTAL	7,524.8	5,600.0	366.5	25.5	193.4	424.2	51.76	21.14	2.562	18,966.8	538.5	495.3	20,000.5
CUM PROD	1,547.6	1,111.5											
ULTIMATE	9,072.5	6,711.5											

PERIOD ENDING M-D-Y	NUMBER OF ACTIVE COMPLETIONS		NET DEDUCTIONS/EXPENDITURES					FUTURE NET REVENUE			PRESENT WORTH PROFILE	
			TAXES		CAPITAL	ABDNMNT	OPERATING	UNDISCOUNTED		DISC AT 10.000%		
			PRODUCTION	AD VALOREM	COST	COST	EXPENSE	PERIOD	CUM	CUM		
	GROSS	NET	M\$	M\$	M\$	M\$	M\$	M\$	M\$	M\$	%	M\$
12-31-2021	2	0.0	0.0	0.0	0.0	0.0	0.0	2,518.2	2,518.2	2,449.6	8.000	15,772.4
12-31-2022	2	0.0	0.0	0.0	0.0	0.0	0.0	3,969.6	6,487.8	6,031.9	12.000	14,323.8
12-31-2023	2	0.0	0.0	0.0	0.0	0.0	0.0	3,671.1	10,158.9	9,043.6	15.000	13,421.2
12-31-2024	2	0.0	0.0	0.0	0.0	0.0	0.0	3,347.1	13,506.0	11,542.3	20.000	12,174.4
12-31-2025	2	0.0	0.0	0.0	0.0	0.0	0.0	2,610.1	16,116.1	13,316.2	25.000	11,166.5
12-31-2026	1	0.0	0.0	0.0	0.0	0.0	0.0	525.4	16,641.5	13,640.2	30.000	10,333.1
12-31-2027	1	0.0	0.0	0.0	0.0	0.0	0.0	481.7	17,123.3	13,910.2	35.000	9,631.7
12-31-2028	1	0.0	0.0	0.0	0.0	0.0	0.0	443.5	17,566.7	14,136.2	40.000	9,032.5
12-31-2029	1	0.0	0.0	0.0	0.0	0.0	0.0	410.1	17,976.8	14,326.2	45.000	8,514.4
12-31-2030	1	0.0	0.0	0.0	0.0	0.0	0.0	380.4	18,357.2	14,486.4	50.000	8,062.0
12-31-2031	1	0.0	0.0	0.0	0.0	0.0	0.0	353.2	18,710.4	14,621.7		
12-31-2032	1	0.0	0.0	0.0	0.0	0.0	0.0	325.0	19,035.3	14,734.8		
12-31-2033	1	0.0	0.0	0.0	0.0	0.0	0.0	299.0	19,334.3	14,829.4		
12-31-2034	1	0.0	0.0	0.0	0.0	0.0	0.0	275.0	19,609.3	14,908.5		
12-31-2035	1	0.0	0.0	0.0	0.0	0.0	0.0	253.0	19,862.4	14,974.7		
SUBTOTAL			0.0	0.0	0.0	0.0	0.0	19,862.4	19,862.4	14,974.7		
REMAINING			0.0	0.0	0.0	0.0	0.0	138.2	20,000.5	15,008.1		
TOTAL OF 16.2 YRS			0.0	0.0	0.0	0.0	0.0	20,000.5	20,000.5	15,008.1		

Table V

All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

BASED ON LEC PRICE AND COST PARAMETERS

LLOG-000047

## RESERVES AND ECONOMICS





SUMMARY PROJECTION OF RESERVES AND REVENUE  
AS OF JUNE 1, 2021

FIELDWOOD ENERGY OFFSHORE LLC  
ROYALTY AND OVERRIDING ROYALTY INTEREST

PROVED + PROBABLE + POSSIBLE (3P) RESERVES

SUMMARY - CERTAIN PROPERTIES  
LOCATED IN GREEN CANYON 201 FIELD  
FEDERAL WATERS IN THE GULF OF MEXICO

PERIOD ENDING M-D-Y	GROSS RESERVES		NET RESERVES				AVERAGE PRICES			GROSS REVENUE			
	OIL	GAS	OIL	NGL	GAS	EQUIV	OIL	NGL	GAS	OIL	NGL	GAS	TOTAL
	MBBL	MMCF	MBBL	MBBL	MMCF	MBOE	\$/BBL	\$/BBL	\$/MCF	M\$	M\$	M\$	M\$
12-31-2021	843.2	636.4	41.1	2.9	22.0	47.6	58.11	23.54	2.896	2,386.4	68.1	63.6	2,518.2
12-31-2022	1,416.5	1,070.1	69.0	4.9	36.9	80.0	54.57	22.20	2.621	3,764.7	108.0	96.8	3,969.6
12-31-2023	1,381.8	1,045.0	67.3	4.8	36.1	78.1	51.74	21.12	2.463	3,481.9	100.4	88.9	3,671.1
12-31-2024	1,302.5	985.5	63.4	4.5	34.0	73.6	50.00	20.46	2.457	3,171.8	91.7	83.6	3,347.1
12-31-2025	1,034.6	780.6	50.4	3.6	27.0	58.4	49.06	20.10	2.472	2,472.1	71.4	66.6	2,610.1
12-31-2026	211.0	147.7	10.3	0.7	5.1	11.8	48.59	19.92	2.487	499.3	13.4	12.7	525.4
12-31-2027	194.1	135.9	9.5	0.6	4.7	10.9	48.42	19.86	2.493	457.8	12.3	11.7	481.7
12-31-2028	178.6	125.0	8.7	0.6	4.3	10.0	48.45	19.87	2.494	421.4	11.3	10.8	443.5
12-31-2029	164.3	115.0	8.0	0.5	4.0	9.2	48.69	19.96	2.524	389.6	10.4	10.0	410.1
12-31-2030	151.2	105.8	7.4	0.5	3.7	8.5	49.07	20.11	2.585	361.2	9.7	9.4	380.4
12-31-2031	139.1	97.3	6.8	0.4	3.4	7.8	49.52	20.28	2.630	335.4	9.0	8.8	353.2
12-31-2032	127.9	89.6	6.2	0.4	3.1	7.2	49.52	20.28	2.630	308.6	8.3	8.1	325.0
12-31-2033	117.7	82.4	5.7	0.4	2.8	6.6	49.52	20.28	2.630	283.9	7.6	7.5	299.0
12-31-2034	108.3	75.8	5.3	0.3	2.6	6.1	49.52	20.28	2.630	261.2	7.0	6.9	275.0
12-31-2035	99.6	69.7	4.9	0.3	2.4	5.6	49.52	20.28	2.630	240.3	6.4	6.3	253.0
SUBTOTAL	7,470.4	5,561.9	363.8	25.3	192.0	421.1	51.77	21.15	2.561	18,835.6	534.9	491.9	19,862.4
REMAINING	54.4	38.1	2.6	0.2	1.3	3.0	49.52	20.28	2.630	131.2	3.5	3.5	138.2
TOTAL	7,524.8	5,600.0	366.5	25.5	193.4	424.2	51.76	21.14	2.562	18,966.8	538.5	495.3	20,000.5
CUM PROD	1,547.6	1,111.5											
ULTIMATE	9,072.5	6,711.5											

PERIOD ENDING M-D-Y	NUMBER OF ACTIVE COMPLETIONS		NET DEDUCTIONS/EXPENDITURES					FUTURE NET REVENUE			PRESENT WORTH PROFILE	
			TAXES		CAPITAL	ABDNMNT	OPERATING	UNDISCOUNTED		DISC AT 10.000%		
			PRODUCTION	AD VALOREM	COST	COST	EXPENSE	PERIOD	CUM	CUM		
	GROSS	NET	M\$	M\$	M\$	M\$	M\$	M\$	M\$	M\$	%	M\$
12-31-2021	2	0.0	0.0	0.0	0.0	0.0	0.0	2,518.2	2,518.2	2,449.6	8.000	15,772.4
12-31-2022	2	0.0	0.0	0.0	0.0	0.0	0.0	3,969.6	6,487.8	6,031.9	12.000	14,323.8
12-31-2023	2	0.0	0.0	0.0	0.0	0.0	0.0	3,671.1	10,158.9	9,043.6	15.000	13,421.2
12-31-2024	2	0.0	0.0	0.0	0.0	0.0	0.0	3,347.1	13,506.0	11,542.3	20.000	12,174.4
12-31-2025	2	0.0	0.0	0.0	0.0	0.0	0.0	2,610.1	16,116.1	13,316.2	25.000	11,166.5
12-31-2026	1	0.0	0.0	0.0	0.0	0.0	0.0	525.4	16,641.5	13,640.2	30.000	10,333.1
12-31-2027	1	0.0	0.0	0.0	0.0	0.0	0.0	481.7	17,123.3	13,910.2	35.000	9,631.7
12-31-2028	1	0.0	0.0	0.0	0.0	0.0	0.0	443.5	17,566.7	14,136.2	40.000	9,032.5
12-31-2029	1	0.0	0.0	0.0	0.0	0.0	0.0	410.1	17,976.8	14,326.2	45.000	8,514.4
12-31-2030	1	0.0	0.0	0.0	0.0	0.0	0.0	380.4	18,357.2	14,486.4	50.000	8,062.0
12-31-2031	1	0.0	0.0	0.0	0.0	0.0	0.0	353.2	18,710.4	14,621.7		
12-31-2032	1	0.0	0.0	0.0	0.0	0.0	0.0	325.0	19,035.3	14,734.8		
12-31-2033	1	0.0	0.0	0.0	0.0	0.0	0.0	299.0	19,334.3	14,829.4		
12-31-2034	1	0.0	0.0	0.0	0.0	0.0	0.0	275.0	19,609.3	14,908.5		
12-31-2035	1	0.0	0.0	0.0	0.0	0.0	0.0	253.0	19,862.4	14,974.7		
SUBTOTAL			0.0	0.0	0.0	0.0	0.0	19,862.4	19,862.4	14,974.7		
REMAINING			0.0	0.0	0.0	0.0	0.0	138.2	20,000.5	15,008.1		
TOTAL OF 16.2 YRS			0.0	0.0	0.0	0.0	0.0	20,000.5	20,000.5	15,008.1		

All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

BASED ON LEC PRICE AND COST PARAMETERS

LLOG-000049



RESERVES AND ECONOMICS  
AS OF JUNE 1, 2021

FIELDWOOD ENERGY OFFSHORE LLC  
ROYALTY AND OVERRIDING ROYALTY INTEREST

PROVED + PROBABLE + POSSIBLE (3P) RESERVES

SUMMARY - CERTAIN PROPERTIES  
LOCATED IN GREEN CANYON 201 FIELD  
FEDERAL WATERS IN THE GULF OF MEXICO

LEASE NUMBER	LEASE NAME	GROSS RESERVES		NET RESERVES				GROSS REVENUE			TOTAL TAXES M\$	NET CAP COST M\$	ABDNMNT COST M\$	OPERATING EXPENSE M\$	NET REVENUE M\$	CUM P.W. 10.000% M\$
		OIL MBBL	GAS MMCF	OIL MBBL	NGL MBBL	GAS MMCF	EQUIV MBOE	OIL M\$	NGL M\$	GAS M\$						
GREEN CANYON 201 FIELD																
PROVED DEVELOPED PRODUCING																
000376	GC201 1ST3	733.2	513.2	35.7	2.3	17.7	41.0	1,923.4	51.2	46.2	0.0	0.0	0.0	0.0	2,020.9	1,775.0
001089	GC201 2ST1	2,195.5	1,690.5	106.9	7.7	58.4	124.3	5,882.8	172.0	155.8	0.0	0.0	0.0	0.0	6,210.5	5,664.1
000375	GC201 FE PDP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
000384	GC201 ABD PDP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GREEN CANYON TOTAL PDP		2,928.7	2,203.8	142.6	10.0	76.1	165.3	7,806.2	223.1	202.0	0.0	0.0	0.0	0.0	8,231.4	7,439.1
PROBABLE																
000377	GC201 1ST3 S1 IPB	1,020.9	714.6	49.7	3.3	24.7	57.1	2,443.3	65.4	61.5	0.0	0.0	0.0	0.0	2,570.3	1,606.2
001077	GC201 2ST1 IPB	1,669.5	1,285.5	81.3	5.8	44.4	94.5	4,130.1	121.4	109.5	0.0	0.0	0.0	0.0	4,360.9	3,377.5
000373	GC201 FE PRB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
001190	GC201 ABD PRB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GREEN CANYON TOTAL PROB		2,690.4	2,000.1	131.0	9.1	69.1	151.6	6,573.4	186.8	171.0	0.0	0.0	0.0	0.0	6,931.2	4,983.7
POSSIBLE																
000378	GC201 1ST3 S1 IPS	1,019.7	713.8	49.7	3.2	24.6	57.0	2,463.0	65.9	64.1	0.0	0.0	0.0	0.0	2,593.1	1,039.9
001078	GC201 2ST1 IPS	886.0	682.2	43.1	3.1	23.6	50.2	2,124.2	62.6	58.2	0.0	0.0	0.0	0.0	2,244.9	1,545.4
000374	GC201 FE POS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
001191	GC201 ABD POS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GREEN CANYON TOTAL POSS		1,905.7	1,396.0	92.8	6.3	48.2	107.2	4,587.2	128.5	122.3	0.0	0.0	0.0	0.0	4,838.0	2,585.4
TOTAL ALL PDP		2,928.7	2,203.8	142.6	10.0	76.1	165.3	7,806.2	223.1	202.0	0.0	0.0	0.0	0.0	8,231.4	7,439.1
TOTAL ALL PROB		2,690.4	2,000.1	131.0	9.1	69.1	151.6	6,573.4	186.8	171.0	0.0	0.0	0.0	0.0	6,931.2	4,983.7
TOTAL ALL POSS		1,905.7	1,396.0	92.8	6.3	48.2	107.2	4,587.2	128.5	122.3	0.0	0.0	0.0	0.0	4,838.0	2,585.4
TOTAL ALL LEASES		7,524.8	5,600.0	366.5	25.5	193.4	424.2	18,966.8	538.5	495.3	0.0	0.0	0.0	0.0	20,000.5	15,008.1



BASIC DATA  
AS OF JUNE 1, 2021

FIELDWOOD ENERGY OFFSHORE LLC  
ROYALTY AND OVERRIDING ROYALTY INTEREST

PROVED + PROBABLE + POSSIBLE (3P) RESERVES

SUMMARY - CERTAIN PROPERTIES  
LOCATED IN GREEN CANYON 201 FIELD  
FEDERAL WATERS IN THE GULF OF MEXICO

LEASE NUMBER	LEASE NAME	RESERVOIR	ACTIVE COMPLTNS		GROSS ULTIMATE		WORKING INTEREST		REVENUE INTEREST		OIL \$/BBL		NGL \$/BBL		GAS \$/MCF		GROSS OPERATING EXPENSE M\$/M		LIFE YRS
			OIL	GAS	MBBL	MMCF	START	END	START	END	START	END	START	END	START	END	START	END	
GREEN CANYON 201 FIELD																			
PROVED DEVELOPED PRODUCING																			
000376	GC201 1ST3	S10A	1	0	1,030.4	726.7	0.000	0.000	4.870	4.870	58.11	50.00	23.54	20.46	2.896	2.457	178.7	140.1	3.0
001089	GC201 2ST1	S8A/B FBB	1	0	3,451.0	2,649.9	0.000	0.000	4.870	4.870	58.11	51.74	23.54	21.12	2.896	2.463	744.0	596.8	2.2
000375	GC201 FE PDP	VARIOUS	0	0	0.0	0.0	0.000	0.000	4.870	4.870	0.00	0.00	0.00	0.00	0.000	0.000	180.0	180.0	3.0
000384	GC201 ABD PDP	VARIOUS	0	0	0.0	0.0	0.000	0.000	4.870	4.870	0.00	0.00	0.00	0.00	0.000	0.000	0.0	0.0	4.0
GREEN CANYON TOTAL PDP			2	0	4,481.4	3,376.7													
PROBABLE																			
000377	GC201 1ST3 S1 IPB	S10A	1	0	1,032.6	722.9	0.000	0.000	4.870	4.870	58.11	48.69	23.54	19.96	2.896	2.524	193.6	102.5	8.0
001077	GC201 2ST1 IPB	S8A/B FBB	1	0	1,641.0	1,207.7	0.000	0.000	4.870	4.870	58.11	49.06	23.54	20.10	2.896	2.472	744.0	547.5	3.7
000373	GC201 FE PRB	VARIOUS	0	0	0.0	0.0	0.000	0.000	4.870	4.870	0.00	0.00	0.00	0.00	0.000	0.000	180.0	180.0	8.1
001190	GC201 ABD PRB	VARIOUS	0	0	0.0	0.0	0.000	0.000	4.870	4.870	0.00	0.00	0.00	0.00	0.000	0.000	0.0	0.0	9.1
GREEN CANYON TOTAL PROB			2	0	2,673.6	1,930.5													
POSSIBLE																			
000378	GC201 1ST3 S1 IPS	S10A	1	0	1,031.5	722.0	0.000	0.000	4.870	4.870	58.11	49.52	23.54	20.28	2.896	2.630	208.5	59.3	15.2
001078	GC201 2ST1 IPS	S8A/B FBB	1	0	886.0	682.2	0.000	0.000	4.870	4.870	58.11	49.06	23.54	20.10	2.896	2.472	744.0	481.7	4.6
000374	GC201 FE POS	VARIOUS	0	0	0.0	0.0	0.000	0.000	4.870	4.870	0.00	0.00	0.00	0.00	0.000	0.000	180.0	180.0	15.2
001191	GC201 ABD POS	VARIOUS	0	0	0.0	0.0	0.000	0.000	4.870	4.870	0.00	0.00	0.00	0.00	0.000	0.000	0.0	0.0	16.2
GREEN CANYON TOTAL POSS			2	0	1,917.5	1,404.3													
TOTAL ALL PDP			2	0	4,481.4	3,376.7													
TOTAL ALL PROB			2	0	2,673.6	1,930.5													
TOTAL ALL PRB DEV			2	0	1,917.5	1,404.3													
TOTAL ALL LEASES			6	0	9,072.5	6,711.5													

**Exhibit C**

**2018 Petroleum Resources Management System**



## PETROLEUM RESERVES AND RESOURCES CLASSIFICATION AND DEFINITIONS

Excerpted from the Petroleum Resources Management System Approved by  
the Society of Petroleum Engineers (SPE) Board of Directors, June 2018

This document contains information excerpted from definitions and guidelines prepared by the Oil and Gas Reserves Committee of the Society of Petroleum Engineers (SPE) and reviewed and jointly sponsored by the SPE, World Petroleum Council, American Association of Petroleum Geologists, Society of Petroleum Evaluation Engineers, Society of Exploration Geophysicists, Society of Petrophysicists and Well Log Analysts, and European Association of Geoscientists & Engineers.

### Preamble

Petroleum resources are the quantities of hydrocarbons naturally occurring on or within the Earth's crust. Resources assessments estimate quantities in known and yet-to-be-discovered accumulations. Resources evaluations are focused on those quantities that can potentially be recovered and marketed by commercial projects. A petroleum resources management system provides a consistent approach to estimating petroleum quantities, evaluating projects, and presenting results within a comprehensive classification framework.

This updated PRMS provides fundamental principles for the evaluation and classification of petroleum reserves and resources. If there is any conflict with prior SPE and PRMS guidance, approved training, or the Application Guidelines, the current PRMS shall prevail. It is understood that these definitions and guidelines allow flexibility for entities, governments, and regulatory agencies to tailor application for their particular needs; however, any modifications to the guidance contained herein must be clearly identified. The terms "shall" or "must" indicate that a provision herein is mandatory for PRMS compliance, while "should" indicates a recommended practice and "may" indicates that a course of action is permissible. The definitions and guidelines contained in this document must not be construed as modifying the interpretation or application of any existing regulatory reporting requirements.

### 1.0 Basic Principles and Definitions

1.0.0.1 A classification system of petroleum resources is a fundamental element that provides a common language for communicating both the confidence of a project's resources maturation status and the range of potential outcomes to the various entities. The PRMS provides transparency by requiring the assessment of various criteria that allow for the classification and categorization of a project's resources. The evaluation elements consider the risk of geologic discovery and the technical uncertainties together with a determination of the chance of achieving the commercial maturation status of a petroleum project.

1.0.0.2 The technical estimation of petroleum resources quantities involves the assessment of quantities and values that have an inherent degree of uncertainty. These quantities are associated with exploration, appraisal, and development projects at various stages of design and implementation. The commercial aspects considered will relate the project's maturity status (e.g., technical, economical, regulatory, and legal) to the chance of project implementation.

1.0.0.3 The use of a consistent classification system enhances comparisons between projects, groups of projects, and total company portfolios. The application of PRMS must consider both technical and commercial factors that impact the project's feasibility, its productive life, and its related cash flows.

### 1.1 Petroleum Resources Classification Framework

1.1.0.1 Petroleum is defined as a naturally occurring mixture consisting of hydrocarbons in the gaseous, liquid, or solid state. Petroleum may also contain non-hydrocarbons, common examples of which are carbon dioxide, nitrogen, hydrogen sulfide, and sulfur. In rare cases, non-hydrocarbon content can be greater than 50%.

1.1.0.2 The term resources as used herein is intended to encompass all quantities of petroleum naturally occurring within the Earth's crust, both discovered and undiscovered (whether recoverable or unrecoverable), plus those quantities already produced. Further, it includes all types of petroleum whether currently considered as conventional or unconventional resources.

1.1.0.3 Figure 1.1 graphically represents the PRMS resources classification system. The system classifies resources into discovered and undiscovered and defines the recoverable resources classes: Production, Reserves, Contingent Resources, and Prospective Resources, as well as Unrecoverable Petroleum.

1.1.0.4 The horizontal axis reflects the range of uncertainty of estimated quantities potentially recoverable from an accumulation by a project, while the vertical axis represents the chance of commerciality,  $P_c$ , which is the chance that a project will be committed for development and reach commercial producing status.

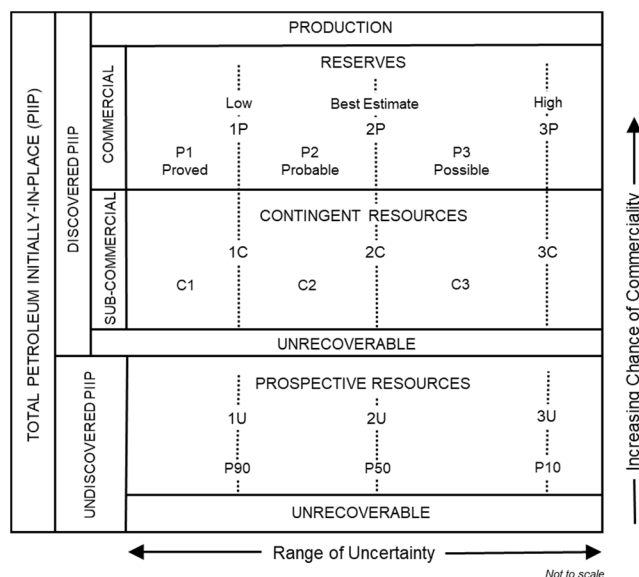


Figure 1.1—Resources classification framework



## PETROLEUM RESERVES AND RESOURCES CLASSIFICATION AND DEFINITIONS

Excerpted from the Petroleum Resources Management System Approved by  
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1.1.0.5 The following definitions apply to the major subdivisions within the resources classification:

- A. **Total Petroleum Initially-In-Place (PIIP)** is all quantities of petroleum that are estimated to exist originally in naturally occurring accumulations, discovered and undiscovered, before production.
- B. **Discovered PIIP** is the quantity of petroleum that is estimated, as of a given date, to be contained in known accumulations before production.
- C. **Production** is the cumulative quantities of petroleum that have been recovered at a given date. While all recoverable resources are estimated, and production is measured in terms of the sales product specifications, raw production (sales plus non-sales) quantities are also measured and required to support engineering analyses based on reservoir voidage (see Section 3.2, Production Measurement).

1.1.0.6 Multiple development projects may be applied to each known or unknown accumulation, and each project will be forecast to recover an estimated portion of the initially-in-place quantities. The projects shall be subdivided into commercial, sub-commercial, and undiscovered, with the estimated recoverable quantities being classified as Reserves, Contingent Resources, or Prospective Resources respectively, as defined below.

- A.
  - 1. **Reserves** are those quantities of petroleum anticipated to be commercially recoverable by application of development projects to known accumulations from a given date forward under defined conditions. Reserves must satisfy four criteria: discovered, recoverable, commercial, and remaining (as of the evaluation's effective date) based on the development project(s) applied.
  - 2. Reserves are recommended as sales quantities as metered at the reference point. Where the entity also recognizes quantities consumed in operations (CiO) (see Section 3.2.2), as Reserves these quantities must be recorded separately. Non-hydrocarbon quantities are recognized as Reserves only when sold together with hydrocarbons or CiO associated with petroleum production. If the non-hydrocarbon is separated before sales, it is excluded from Reserves.
  - 3. Reserves are further categorized in accordance with the range of uncertainty and should be sub-classified based on project maturity and/or characterized by development and production status.
- B. **Contingent Resources** are those quantities of petroleum estimated, as of a given date, to be potentially recoverable from known accumulations, by the application of development project(s) not currently considered to be commercial owing to one or more contingencies. Contingent Resources have an associated chance of development. Contingent Resources may include, for example, projects for which there are currently no viable markets, or where commercial recovery is dependent on technology under development, or where evaluation of the accumulation is insufficient to clearly assess commerciality. Contingent Resources are further categorized in accordance with the range of uncertainty associated with the estimates and should be sub-classified based on project maturity and/or economic status.
- C. **Undiscovered PIIP** is that quantity of petroleum estimated, as of a given date, to be contained within accumulations yet to be discovered.
- D. **Prospective Resources** are those quantities of petroleum estimated, as of a given date, to be potentially recoverable from undiscovered accumulations by application of future development projects. Prospective Resources have both an associated chance of geologic discovery and a chance of development. Prospective Resources are further categorized in accordance with the range of uncertainty associated with recoverable estimates, assuming discovery and development, and may be sub-classified based on project maturity.
- E. **Unrecoverable Resources** are that portion of either discovered or undiscovered PIIP evaluated, as of a given date, to be unrecoverable by the currently defined project(s). A portion of these quantities may become recoverable in the future as commercial circumstances change, technology is developed, or additional data are acquired. The remaining portion may never be recovered because of physical/chemical constraints represented by subsurface interaction of fluids and reservoir rocks.

1.1.0.7 The sum of Reserves, Contingent Resources, and Prospective Resources may be referred to as "remaining recoverable resources." Importantly, these quantities should not be aggregated without due consideration of the technical and commercial risk involved with their classification. When such terms are used, each classification component of the summation must be provided.

1.1.0.8 Other terms used in resource assessments include the following:

- A. **Estimated Ultimate Recovery (EUR)** is not a resources category or class, but a term that can be applied to an accumulation or group of accumulations (discovered or undiscovered) to define those quantities of petroleum estimated, as of a given date, to be potentially recoverable plus those quantities already produced from the accumulation or group of accumulations. For clarity, EUR must reference the associated technical and commercial conditions for the resources; for example, proved EUR is Proved Reserves plus prior production.
- B. **Technically Recoverable Resources (TRR)** are those quantities of petroleum producible using currently available technology and industry practices, regardless of commercial considerations. TRR may be used for specific Projects or for groups of Projects, or, can be an undifferentiated estimate within an area (often basin-wide) of recovery potential.

## PETROLEUM RESERVES AND RESOURCES CLASSIFICATION AND DEFINITIONS

Excerpted from the Petroleum Resources Management System Approved by  
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### 1.2 Project-Based Resources Evaluations

1.2.0.1 The resources evaluation process consists of identifying a recovery project or projects associated with one or more petroleum accumulations, estimating the quantities of PIIP, estimating that portion of those in-place quantities that can be recovered by each project, and classifying the project(s) based on maturity status or chance of commerciality.

1.2.0.2 The concept of a project-based classification system is further clarified by examining the elements contributing to an evaluation of net recoverable resources (see Figure 1.2).

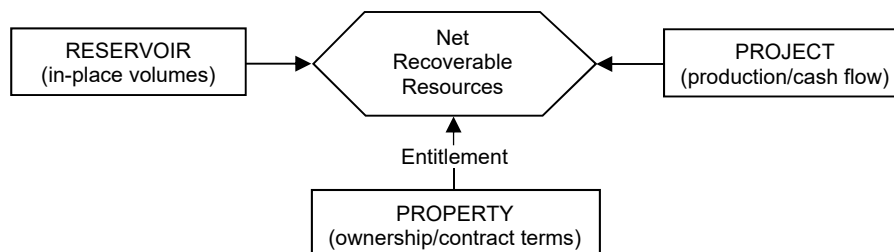


Figure 1.2—Resources evaluation

1.2.0.3 **The reservoir** (contains the petroleum accumulation): Key attributes include the types and quantities of PIIP and the fluid and rock properties that affect petroleum recovery.

1.2.0.4 **The project:** A project may constitute the development of a well, a single reservoir, or a small field; an incremental development in a producing field; or the integrated development of a field or several fields together with the associated processing facilities (e.g., compression). Within a project, a specific reservoir's development generates a unique production and cash-flow schedule at each level of certainty. The integration of these schedules taken to the project's earliest truncation caused by technical, economic, or the contractual limit defines the estimated recoverable resources and associated future net cash flow projections for each project. The ratio of EUR to total PIIP quantities defines the project's recovery efficiency. Each project should have an associated recoverable resources range (low, best, and high estimate).

1.2.0.5 **The property** (lease or license area): Each property may have unique associated contractual rights and obligations, including the fiscal terms. This information allows definition of each participating entity's share of produced quantities (entitlement) and share of investments, expenses, and revenues for each recovery project and the reservoir to which it is applied. One property may encompass many reservoirs, or one reservoir may span several different properties. A property may contain both discovered and undiscovered accumulations that may be spatially unrelated to a potential single field designation.

1.2.0.6 An entity's net recoverable resources are the entitlement share of future production legally accruing under the terms of the development and production contract or license.

1.2.0.7 In the context of this relationship, the project is the primary element considered in the resources classification, and the net recoverable resources are the quantities derived from each project. A project represents a defined activity or set of activities to develop the petroleum accumulation(s) and the decisions taken to mature the resources to reserves. In general, it is recommended that an individual project has assigned to it a specific maturity level sub-class (See Section 2.1.3.5, Project Maturity Sub-Classes) at which a decision is made whether or not to proceed (i.e., spend more money) and there should be an associated range of estimated recoverable quantities for the project (See Section 2.2.1, Range of Uncertainty). For completeness, a developed field is also considered to be a project.

1.2.0.8 An accumulation or potential accumulation of petroleum is often subject to several separate and distinct projects that are at different stages of exploration or development. Thus, an accumulation may have recoverable quantities in several resources classes simultaneously.

1.2.0.10 Not all technically feasible development projects will be commercial. The commercial viability of a development project within a field's development plan is dependent on a forecast of the conditions that will exist during the time period encompassed by the project (see Section 3.1, Assessment of Commerciality). Conditions include technical, economic (e.g., hurdle rates, commodity prices), operating and capital costs, marketing, sales route(s), and legal, environmental, social, and governmental factors forecast to exist and impact the project during the time period being evaluated. While economic factors can be summarized as forecast costs and product prices, the underlying influences include, but are not limited to, market conditions (e.g., inflation, market factors, and contingencies), exchange rates, transportation and processing infrastructure, fiscal terms, and taxes.

1.2.0.11 The resources being estimated are those quantities producible from a project as measured according to delivery specifications at the point of sale or custody transfer (see Section 3.2.1, Reference Point) and may permit forecasts of CiO quantities (see Section 3.2.2., Consumed in Operations). The cumulative production forecast from the effective date forward to cessation of production is the remaining recoverable resources quantity (see Section 3.1.1, Net Cash-Flow Evaluation).





## PETROLEUM RESERVES AND RESOURCES CLASSIFICATION AND DEFINITIONS

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1.2.0.12 The supporting data, analytical processes, and assumptions describing the technical and commercial basis used in an evaluation must be documented in sufficient detail to allow, as needed, a qualified reserves evaluator or qualified reserves auditor to clearly understand each project's basis for the estimation, categorization, and classification of recoverable resources quantities and, if appropriate, associated commercial assessment.

## 2.0 Classification and Categorization Guidelines

### 2.1 Resources Classification

2.1.0.1 The PRMS classification establishes criteria for the classification of the total PIIP. A determination of a discovery differentiates between discovered and undiscovered PIIP. The application of a project further differentiates the recoverable from unrecoverable resources. The project is then evaluated to determine its maturity status to allow the classification distinction between commercial and sub-commercial projects. PRMS requires the project's recoverable resources quantities to be classified as either Reserves, Contingent Resources, or Prospective Resources.

#### 2.1.1 Determination of Discovery Status

2.1.1.1 A discovered petroleum accumulation is determined to exist when one or more exploratory wells have established through testing, sampling, and/or logging the existence of a significant quantity of potentially recoverable hydrocarbons and thus have established a known accumulation. In the absence of a flow test or sampling, the discovery determination requires confidence in the presence of hydrocarbons and evidence of producibility, which may be supported by suitable producing analogs (see Section 4.1.1, Analogs). In this context, "significant" implies that there is evidence of a sufficient quantity of petroleum to justify estimating the in-place quantity demonstrated by the well(s) and for evaluating the potential for commercial recovery.

2.1.1.2 Where a discovery has identified potentially recoverable hydrocarbons, but it is not considered viable to apply a project with established technology or with technology under development, such quantities may be classified as Discovered Unrecoverable with no Contingent Resources. In future evaluations, as appropriate for petroleum resources management purposes, a portion of these unrecoverable quantities may become recoverable resources as either commercial circumstances change or technological developments occur.

#### 2.1.2 Determination of Commerciality

2.1.2.1 Discovered recoverable quantities (Contingent Resources) may be considered commercially mature, and thus attain Reserves classification, if the entity claiming commerciality has demonstrated a firm intention to proceed with development. This means the entity has satisfied the internal decision criteria (typically rate of return at or above the weighted average cost-of-capital or the hurdle rate). Commerciality is achieved with the entity's commitment to the project and all of the following criteria:

- A. Evidence of a technically mature, feasible development plan.
- B. Evidence of financial appropriations either being in place or having a high likelihood of being secured to implement the project.
- C. Evidence to support a reasonable time-frame for development.
- D. A reasonable assessment that the development projects will have positive economics and meet defined investment and operating criteria. This assessment is performed on the estimated entitlement forecast quantities and associated cash flow on which the investment decision is made (see Section 3.1.1, Net Cash-Flow Evaluation).
- E. A reasonable expectation that there will be a market for forecast sales quantities of the production required to justify development. There should also be similar confidence that all produced streams (e.g., oil, gas, water, CO<sub>2</sub>) can be sold, stored, re-injected, or otherwise appropriately disposed.
- F. Evidence that the necessary production and transportation facilities are available or can be made available.
- G. Evidence that legal, contractual, environmental, regulatory, and government approvals are in place or will be forthcoming, together with resolving any social and economic concerns.

2.1.2.2 The commerciality test for Reserves determination is applied to the best estimate (P50) forecast quantities, which upon qualifying all commercial and technical maturity criteria and constraints become the 2P Reserves. Stricter cases [e.g., low estimate (P90)] may be used for decision purposes or to investigate the range of commerciality (see Section 3.1.2, Economic Criteria). Typically, the low- and high-case project scenarios may be evaluated for sensitivities when considering project risk and upside opportunity.

2.1.2.3 To be included in the Reserves class, a project must be sufficiently defined to establish both its technical and commercial viability as noted in Section 2.1.2.1. There must be a reasonable expectation that all required internal and external approvals will be forthcoming and evidence of firm intention to proceed with development within a reasonable time-frame. A reasonable time-frame for the initiation of development depends on the specific circumstances and varies according to the scope of the project. While five years is recommended as a benchmark, a longer time-frame could be applied where justifiable; for example, development of economic projects that take longer than five years to be developed or are deferred to meet contractual or strategic objectives. In all cases, the justification for classification as Reserves should be clearly documented.





## PETROLEUM RESERVES AND RESOURCES CLASSIFICATION AND DEFINITIONS

Excerpted from the Petroleum Resources Management System Approved by  
the Society of Petroleum Engineers (SPE) Board of Directors, June 2018

2.1.2.4 While PRMS guidelines require financial appropriations evidence, they do not require that project financing be confirmed before classifying projects as Reserves. However, this may be another external reporting requirement. In many cases, financing is conditional upon the same criteria as above. In general, if there is not a reasonable expectation that financing or other forms of commitment (e.g., farm-outs) can be arranged so that the development will be initiated within a reasonable time-frame, then the project should be classified as Contingent Resources. If financing is reasonably expected to be in place at the time of the final investment decision (FID), the project's resources may be classified as Reserves.

### 2.2 Resources Categorization

2.2.0.1 The horizontal axis in the resources classification in Figure 1.1 defines the range of uncertainty in estimates of the quantities of recoverable, or potentially recoverable, petroleum associated with a project or group of projects. These estimates include the uncertainty components as follows:

- A. The total petroleum remaining within the accumulation (in-place resources).
- B. The technical uncertainty in the portion of the total petroleum that can be recovered by applying a defined development project or projects (i.e., the technology applied).
- C. Known variations in the commercial terms that may impact the quantities recovered and sold (e.g., market availability; contractual changes, such as production rate tiers or product quality specifications) are part of project's scope and are included in the horizontal axis, while the chance of satisfying the commercial terms is reflected in the classification (vertical axis).

2.2.0.2 The uncertainty in a project's recoverable quantities is reflected by the 1P, 2P, 3P, Proved (P1), Probable (P2), Possible (P3), 1C, 2C, 3C, C1, C2, and C3; or 1U, 2U, and 3U resources categories. The commercial chance of success is associated with resources classes or sub-classes and not with the resources categories reflecting the range of recoverable quantities.

#### 2.2.1 Range of Uncertainty

2.2.1.1 Uncertainty is inherent in a project's resources estimation and is communicated in PRMS by reporting a range of category outcomes. The range of uncertainty of the recoverable and/or potentially recoverable quantities may be represented by either deterministic scenarios or by a probability distribution (see Section 4.2, Resources Assessment Methods).

2.2.1.2 When the range of uncertainty is represented by a probability distribution, a low, best, and high estimate shall be provided such that:

- A. There should be at least a 90% probability (P90) that the quantities actually recovered will equal or exceed the low estimate.
- B. There should be at least a 50% probability (P50) that the quantities actually recovered will equal or exceed the best estimate.
- C. There should be at least a 10% probability (P10) that the quantities actually recovered will equal or exceed the high estimate.

2.2.1.3 In some projects, the range of uncertainty may be limited, and the three scenarios may result in resources estimates that are not significantly different. In these situations, a single value estimate may be appropriate to describe the expected result.

2.2.1.4 When using the deterministic scenario method, typically there should also be low, best, and high estimates, where such estimates are based on qualitative assessments of relative uncertainty using consistent interpretation guidelines. Under the deterministic incremental method, quantities for each confidence segment are estimated discretely (see Section 2.2.2, Category Definitions and Guidelines).

2.2.1.5 Project resources are initially estimated using the above uncertainty range forecasts that incorporate the subsurface elements together with technical constraints related to wells and facilities. The technical forecasts then have additional commercial criteria applied (e.g., economics and license cutoffs are the most common) to estimate the entitlement quantities attributed and the resources classification status: Reserves, Contingent Resources, and Prospective Resources.

#### 2.2.2 Category Definitions and Guidelines

2.2.2.1 Evaluators may assess recoverable quantities and categorize results by uncertainty using the deterministic incremental method, the deterministic scenario (cumulative) method, geostatistical methods, or probabilistic methods (see Section 4.2, Resources Assessment Methods). Also, combinations of these methods may be used.

2.2.2.2 Use of consistent terminology (Figures 1.1 and 2.1) promotes clarity in communication of evaluation results. For Reserves, the general cumulative terms low/best/high forecasts are used to estimate the resulting 1P/2P/3P quantities, respectively. The associated incremental quantities are termed Proved (P1), Probable (P2) and Possible (P3). Reserves are a subset of, and must be viewed within the context of, the complete resources classification system. While the categorization criteria are proposed specifically for Reserves, in most cases, the criteria can be equally applied to Contingent and Prospective Resources. Upon satisfying the commercial maturity criteria for discovery and/or development, the project quantities will then move to the appropriate resources sub-class. Table 3 provides criteria for the Reserves categories determination.

2.2.2.3 For Contingent Resources, the general cumulative terms low/best/high estimates are used to estimate the resulting 1C/2C/3C quantities, respectively. The terms C1, C2, and C3 are defined for incremental quantities of Contingent Resources.



## PETROLEUM RESERVES AND RESOURCES CLASSIFICATION AND DEFINITIONS

Excerpted from the Petroleum Resources Management System Approved by  
the Society of Petroleum Engineers (SPE) Board of Directors, June 2018

2.2.2.4 For Prospective Resources, the general cumulative terms low/best/high estimates also apply and are used to estimate the resulting 1U/2U/3U quantities. No specific terms are defined for incremental quantities within Prospective Resources.

2.2.2.5 Quantities in different classes and sub-classes cannot be aggregated without considering the varying degrees of technical uncertainty and commercial likelihood involved with the classification(s) and without considering the degree of dependency between them (see Section 4.2.1, Aggregating Resources Classes).

2.2.2.6 Without new technical information, there should be no change in the distribution of technically recoverable resources and the categorization boundaries when conditions are satisfied to reclassify a project from Contingent Resources to Reserves.

2.2.2.7 All evaluations require application of a consistent set of forecast conditions, including assumed future costs and prices, for both classification of projects and categorization of estimated quantities recovered by each project (see Section 3.1, Assessment of Commerciality).

**Table 1—Recoverable Resources Classes and Sub-Classes**

Class/Sub-Class	Definition	Guidelines
<b>Reserves</b>	Reserves are those quantities of petroleum anticipated to be commercially recoverable by application of development projects to known accumulations from a given date forward under defined conditions.	<p>Reserves must satisfy four criteria: discovered, recoverable, commercial, and remaining based on the development project(s) applied. Reserves are further categorized in accordance with the level of certainty associated with the estimates and may be sub-classified based on project maturity and/or characterized by the development and production status.</p> <p>To be included in the Reserves class, a project must be sufficiently defined to establish its commercial viability (see Section 2.1.2, Determination of Commerciality). This includes the requirement that there is evidence of firm intention to proceed with development within a reasonable time-frame.</p> <p>A reasonable time-frame for the initiation of development depends on the specific circumstances and varies according to the scope of the project. While five years is recommended as a benchmark, a longer time-frame could be applied where, for example, development of an economic project is deferred at the option of the producer for, among other things, market-related reasons or to meet contractual or strategic objectives. In all cases, the justification for classification as Reserves should be clearly documented.</p> <p>To be included in the Reserves class, there must be a high confidence in the commercial maturity and economic producibility of the reservoir as supported by actual production or formation tests. In certain cases, Reserves may be assigned on the basis of well logs and/or core analysis that indicate that the subject reservoir is hydrocarbon-bearing and is analogous to reservoirs in the same area that are producing or have demonstrated the ability to produce on formation tests.</p>
<b>On Production</b>	The development project is currently producing or capable of producing and selling petroleum to market.	<p>The key criterion is that the project is receiving income from sales, rather than that the approved development project is necessarily complete. Includes Developed Producing Reserves.</p> <p>The project decision gate is the decision to initiate or continue economic production from the project.</p>
<b>Approved for Development</b>	All necessary approvals have been obtained, capital funds have been committed, and implementation of the development project is ready to begin or is under way.	<p>At this point, it must be certain that the development project is going ahead. The project must not be subject to any contingencies, such as outstanding regulatory approvals or sales contracts. Forecast capital expenditures should be included in the reporting entity's current or following year's approved budget.</p> <p>The project decision gate is the decision to start investing capital in the construction of production facilities and/or drilling development wells.</p>



## PETROLEUM RESERVES AND RESOURCES CLASSIFICATION AND DEFINITIONS

Excerpted from the Petroleum Resources Management System Approved by  
the Society of Petroleum Engineers (SPE) Board of Directors, June 2018

Class/Sub-Class	Definition	Guidelines
<b>Justified for Development</b>	Implementation of the development project is justified on the basis of reasonable forecast commercial conditions at the time of reporting, and there are reasonable expectations that all necessary approvals/contracts will be obtained.	<p>To move to this level of project maturity, and hence have Reserves associated with it, the development project must be commercially viable at the time of reporting (see Section 2.1.2, Determination of Commerciality) and the specific circumstances of the project. All participating entities have agreed and there is evidence of a committed project (firm intention to proceed with development within a reasonable time-frame). There must be no known contingencies that could preclude the development from proceeding (see Reserves class).</p> <p>The project decision gate is the decision by the reporting entity and its partners, if any, that the project has reached a level of technical and commercial maturity sufficient to justify proceeding with development at that point in time.</p>
<b>Contingent Resources</b>	Those quantities of petroleum estimated, as of a given date, to be potentially recoverable from known accumulations by application of development projects, but which are not currently considered to be commercially recoverable owing to one or more contingencies.	<p>Contingent Resources may include, for example, projects for which there are currently no viable markets, where commercial recovery is dependent on technology under development, where evaluation of the accumulation is insufficient to clearly assess commerciality, where the development plan is not yet approved, or where regulatory or social acceptance issues may exist.</p> <p>Contingent Resources are further categorized in accordance with the level of certainty associated with the estimates and may be sub-classified based on project maturity and/or characterized by the economic status.</p>
<b>Development Pending</b>	A discovered accumulation where project activities are ongoing to justify commercial development in the foreseeable future.	<p>The project is seen to have reasonable potential for eventual commercial development, to the extent that further data acquisition (e.g., drilling, seismic data) and/or evaluations are currently ongoing with a view to confirming that the project is commercially viable and providing the basis for selection of an appropriate development plan. The critical contingencies have been identified and are reasonably expected to be resolved within a reasonable time-frame. Note that disappointing appraisal/evaluation results could lead to a reclassification of the project to On Hold or Not Viable status.</p> <p>The project decision gate is the decision to undertake further data acquisition and/or studies designed to move the project to a level of technical and commercial maturity at which a decision can be made to proceed with development and production.</p>
<b>Development on Hold</b>	A discovered accumulation where project activities are on hold and/or where justification as a commercial development may be subject to significant delay.	<p>The project is seen to have potential for commercial development. Development may be subject to a significant time delay. Note that a change in circumstances, such that there is no longer a probable chance that a critical contingency can be removed in the foreseeable future, could lead to a reclassification of the project to Not Viable status.</p> <p>The project decision gate is the decision to either proceed with additional evaluation designed to clarify the potential for eventual commercial development or to temporarily suspend or delay further activities pending resolution of external contingencies.</p>
<b>Development Unclassified</b>	A discovered accumulation where project activities are under evaluation and where justification as a commercial development is unknown based on available information.	<p>The project is seen to have potential for eventual commercial development, but further appraisal/evaluation activities are ongoing to clarify the potential for eventual commercial development.</p> <p>This sub-class requires active appraisal or evaluation and should not be maintained without a plan for future evaluation. The sub-class should reflect the actions required to move a project toward commercial maturity and economic production.</p>



## PETROLEUM RESERVES AND RESOURCES CLASSIFICATION AND DEFINITIONS

Excerpted from the Petroleum Resources Management System Approved by  
the Society of Petroleum Engineers (SPE) Board of Directors, June 2018

Class/Sub-Class	Definition	Guidelines
<b>Development Not Viable</b>	A discovered accumulation for which there are no current plans to develop or to acquire additional data at the time because of limited production potential.	The project is not seen to have potential for eventual commercial development at the time of reporting, but the theoretically recoverable quantities are recorded so that the potential opportunity will be recognized in the event of a major change in technology or commercial conditions.  The project decision gate is the decision not to undertake further data acquisition or studies on the project for the foreseeable future.
<b>Prospective Resources</b>	Those quantities of petroleum that are estimated, as of a given date, to be potentially recoverable from undiscovered accumulations.	Potential accumulations are evaluated according to the chance of geologic discovery and, assuming a discovery, the estimated quantities that would be recoverable under defined development projects. It is recognized that the development programs will be of significantly less detail and depend more heavily on analog developments in the earlier phases of exploration.
<b>Prospect</b>	A project associated with a potential accumulation that is sufficiently well defined to represent a viable drilling target.	Project activities are focused on assessing the chance of geologic discovery and, assuming discovery, the range of potential recoverable quantities under a commercial development program.
<b>Lead</b>	A project associated with a potential accumulation that is currently poorly defined and requires more data acquisition and/or evaluation to be classified as a Prospect.	Project activities are focused on acquiring additional data and/or undertaking further evaluation designed to confirm whether or not the Lead can be matured into a Prospect. Such evaluation includes the assessment of the chance of geologic discovery and, assuming discovery, the range of potential recovery under feasible development scenarios.
<b>Play</b>	A project associated with a prospective trend of potential prospects, but that requires more data acquisition and/or evaluation to define specific Leads or Prospects.	Project activities are focused on acquiring additional data and/or undertaking further evaluation designed to define specific Leads or Prospects for more detailed analysis of their chance of geologic discovery and, assuming discovery, the range of potential recovery under hypothetical development scenarios.

**Table 2—Reserves Status Definitions and Guidelines**

Status	Definition	Guidelines
<b>Developed Reserves</b>	Expected quantities to be recovered from existing wells and facilities.	Reserves are considered developed only after the necessary equipment has been installed, or when the costs to do so are relatively minor compared to the cost of a well. Where required facilities become unavailable, it may be necessary to reclassify Developed Reserves as Undeveloped. Developed Reserves may be further sub-classified as Producing or Non-producing.
<b>Developed Producing Reserves</b>	Expected quantities to be recovered from completion intervals that are open and producing at the effective date of the estimate.	Improved recovery Reserves are considered producing only after the improved recovery project is in operation.
<b>Developed Non-Producing Reserves</b>	Shut-in and behind-pipe Reserves.	Shut-in Reserves are expected to be recovered from (1) completion intervals that are open at the time of the estimate but which have not yet started producing, (2) wells which were shut-in for market conditions or pipeline connections, or (3) wells not capable of production for mechanical reasons. Behind-pipe Reserves are expected to be recovered from zones in existing wells that will require additional completion work or future re-completion before start of production with minor cost to access these reserves.  In all cases, production can be initiated or restored with relatively low expenditure compared to the cost of drilling a new well.



## PETROLEUM RESERVES AND RESOURCES CLASSIFICATION AND DEFINITIONS

Excerpted from the Petroleum Resources Management System Approved by  
the Society of Petroleum Engineers (SPE) Board of Directors, June 2018

Status	Definition	Guidelines
<b>Undeveloped Reserves</b>	Quantities expected to be recovered through future significant investments.	Undeveloped Reserves are to be produced (1) from new wells on undrilled acreage in known accumulations, (2) from deepening existing wells to a different (but known) reservoir, (3) from infill wells that will increase recovery, or (4) where a relatively large expenditure (e.g., when compared to the cost of drilling a new well) is required to (a) recomplete an existing well or (b) install production or transportation facilities for primary or improved recovery projects.

**Table 3—Reserves Category Definitions and Guidelines**

Category	Definition	Guidelines
<b>Proved Reserves</b>	Those quantities of petroleum that, by analysis of geoscience and engineering data, can be estimated with reasonable certainty to be commercially recoverable from a given date forward from known reservoirs and under defined economic conditions, operating methods, and government regulations.	<p>If deterministic methods are used, the term "reasonable certainty" is intended to express a high degree of confidence that the quantities will be recovered. If probabilistic methods are used, there should be at least a 90% probability (P90) that the quantities actually recovered will equal or exceed the estimate.</p> <p>The area of the reservoir considered as Proved includes (1) the area delineated by drilling and defined by fluid contacts, if any, and (2) adjacent undrilled portions of the reservoir that can reasonably be judged as continuous with it and commercially productive on the basis of available geoscience and engineering data.</p> <p>In the absence of data on fluid contacts, Proved quantities in a reservoir are limited by the LKH as seen in a well penetration unless otherwise indicated by definitive geoscience, engineering, or performance data. Such definitive information may include pressure gradient analysis and seismic indicators. Seismic data alone may not be sufficient to define fluid contacts for Proved reserves.</p> <p>Reserves in undeveloped locations may be classified as Proved provided that:</p> <ul style="list-style-type: none"> <li>A. The locations are in undrilled areas of the reservoir that can be judged with reasonable certainty to be commercially mature and economically productive.</li> <li>B. Interpretations of available geoscience and engineering data indicate with reasonable certainty that the objective formation is laterally continuous with drilled Proved locations.</li> </ul> <p>For Proved Reserves, the recovery efficiency applied to these reservoirs should be defined based on a range of possibilities supported by analogs and sound engineering judgment considering the characteristics of the Proved area and the applied development program.</p>
<b>Probable Reserves</b>	Those additional Reserves that analysis of geoscience and engineering data indicates are less likely to be recovered than Proved Reserves but more certain to be recovered than Possible Reserves.	<p>It is equally likely that actual remaining quantities recovered will be greater than or less than the sum of the estimated Proved plus Probable Reserves (2P). In this context, when probabilistic methods are used, there should be at least a 50% probability that the actual quantities recovered will equal or exceed the 2P estimate.</p> <p>Probable Reserves may be assigned to areas of a reservoir adjacent to Proved where data control or interpretations of available data are less certain. The interpreted reservoir continuity may not meet the reasonable certainty criteria.</p> <p>Probable estimates also include incremental recoveries associated with project recovery efficiencies beyond that assumed for Proved.</p>



## PETROLEUM RESERVES AND RESOURCES CLASSIFICATION AND DEFINITIONS

Excerpted from the Petroleum Resources Management System Approved by  
the Society of Petroleum Engineers (SPE) Board of Directors, June 2018

Category	Definition	Guidelines
<b>Possible Reserves</b>	Those additional reserves that analysis of geoscience and engineering data indicates are less likely to be recoverable than Probable Reserves.	<p>The total quantities ultimately recovered from the project have a low probability to exceed the sum of Proved plus Probable plus Possible (3P), which is equivalent to the high-estimate scenario. When probabilistic methods are used, there should be at least a 10% probability (P10) that the actual quantities recovered will equal or exceed the 3P estimate.</p> <p>Possible Reserves may be assigned to areas of a reservoir adjacent to Probable where data control and interpretations of available data are progressively less certain. Frequently, this may be in areas where geoscience and engineering data are unable to clearly define the area and vertical reservoir limits of economic production from the reservoir by a defined, commercially mature project.</p> <p>Possible estimates also include incremental quantities associated with project recovery efficiencies beyond that assumed for Probable.</p>
<b>Probable and Possible Reserves</b>	See above for separate criteria for Probable Reserves and Possible Reserves.	<p>The 2P and 3P estimates may be based on reasonable alternative technical interpretations within the reservoir and/or subject project that are clearly documented, including comparisons to results in successful similar projects.</p> <p>In conventional accumulations, Probable and/or Possible Reserves may be assigned where geoscience and engineering data identify directly adjacent portions of a reservoir within the same accumulation that may be separated from Proved areas by minor faulting or other geological discontinuities and have not been penetrated by a wellbore but are interpreted to be in communication with the known (Proved) reservoir. Probable or Possible Reserves may be assigned to areas that are structurally higher than the Proved area. Possible (and in some cases, Probable) Reserves may be assigned to areas that are structurally lower than the adjacent Proved or 2P area.</p> <p>Caution should be exercised in assigning Reserves to adjacent reservoirs isolated by major, potentially sealing faults until this reservoir is penetrated and evaluated as commercially mature and economically productive. Justification for assigning Reserves in such cases should be clearly documented. Reserves should not be assigned to areas that are clearly separated from a known accumulation by non-productive reservoir (i.e., absence of reservoir, structurally low reservoir, or negative test results); such areas may contain Prospective Resources.</p> <p>In conventional accumulations, where drilling has defined a highest known oil elevation and there exists the potential for an associated gas cap, Proved Reserves of oil should only be assigned in the structurally higher portions of the reservoir if there is reasonable certainty that such portions are initially above bubble point pressure based on documented engineering analyses. Reservoir portions that do not meet this certainty may be assigned as Probable and Possible oil and/or gas based on reservoir fluid properties and pressure gradient interpretations.</p>